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Gender Stereotypes, Information Search, and Voting Behavior in Political Campaigns

Hillary Clinton ran for President in 2008, narrowly losing the Democratic nomination to Barack Obama. In doing so, she raised the profile of women as candidates for high office, generating much media commentary about the role of gender in presidential elections. As the first woman to have a real shot at winning a major party nomination, her candidacy brought to the forefront the complicated and often contradictory nature of gender politics. Was Clinton too “masculine” to be likable or too emotional to serve in high office? Did her time serving as First Lady really count as political experience? Perhaps most fundamentally, did her gender help or harm her on Election Day? While her candidacy left little doubt that gender still matters in American politics, it demonstrates how little consensus there is about *how* gender matters. While Clinton’s candidacy marks the closest point a woman has come to reaching the highest office in the nation, it remains unclear how much things have changed for female candidates, and in what ways. This paper seeks to shed more light on how gender matters in political campaigns today, as well as how the role played by candidate gender has changed over time.

Much of what we have learned to date about gender and candidates is very much context-dependent and even contradictory. In particular, while many survey-based studies find that overt bias toward women candidates is no longer a major obstacle to their election to office (Burrell 1994, Seltzer, Newman and Leighton 1997, Darcy, et al 1997, Woods 2000, Dolan 2004) and their gender may even provide advantages (Cook, Wilcox and Thomas 1994, Dolan 2004, Lawless 2004), there is substantial experimental evidence that women candidates are evaluated differently than their male counterparts because of gender-based stereotypes (e.g. Huddy and Terkildsen 1993, Kahn 1996, Cook, Thomas and Wilcox 1994; Dolan 2004; Rosenwasser and Seale 1988; but see Schneider and Bos forthcoming, for a different perspective,) and can be disadvantaged in certain political contexts (Huddy and Terkildsen 1993, Carroll and Dittmar 2010).

If we conceive of the relationship between gender and voting as directly linked, these inconsistencies are difficult to explain. However, unlike most previous electoral studies, we see voting as

an information-processing task and the act of casting a vote as simply the final step in an often long, complex process. Voters must search for and encounter information about candidates, which they then process in order to build an evaluation and, ultimately, make a choice. This model suggests that while candidate characteristics like gender can affect vote choice, they generally do so through their influence on information search and processing, rather than directly. We view candidate gender itself as a piece of information, something that voters encounter and evaluate as they do other information about candidates, such as issue positions, personality traits, and background characteristics. At the same time, particularly in high-level elections, candidate gender – when that gender is female - can focus voters, the media, and even fellow candidates in a way that most other candidate traits do not (perhaps with the exception of race). We expect that the existence of gender-based stereotypes will lead voters to seek out different kinds and amounts of information about women candidates than they do for men, and that search patterns, in turn, affect vote choice.

There are significant challenges to studying the question of gender and the vote, whether through survey research or experimental work. Could it be that male and female candidates actually do differ in substantive ways, or is any difference we see situated in the biases and assumptions of the voters themselves? We could examine gender and voters with real candidates – for example asking voters about their perceptions of Hillary Clinton and comparing them to their perceptions of other (male) candidates. But what this cannot tell us is the degree to which the expressed perceptions are determined by the actual information voters know or by their assumptions of what must be true – their stereotypes. Thus looking at real candidates – at least when we wish to disentangle candidate and voter effects – just does not suffice.

Alternatively, we can use invented candidates designed to be realistic depictions of the types of people who run for president, and ask voters to learn about those candidates. Such an experimental approach allows us to control the candidates' characteristics and issue positions, and move toward disentangling assumptions from reality. But experimental work often is very limiting; studies that use invented candidates (e.g. Smith, et al 2008; Lodge, McGraw, and Stroh, 1989; Riggle and Johnson, 1996; Huang, 2000; Huang and Price, 2001) usually provide very small amounts of easily available information

about the candidates. The real political environment is much more complex, which limits external validity.

We take the experimental approach, but do so using the Lau and Redlawsk (2001; 2006) Dynamic Process Tracing Environment (DPTE),¹ which allows us to simulate a presidential campaign of great complexity. We invent candidates and experimentally manipulate their gender, while study participants (voters) are able to choose from a broad range of candidate information in an environment that mimics the chaotic nature of a real world political campaign. We argue that this method provides us with the “best of both worlds,” as it allows us to control the characteristics assigned to the candidates we study, but also improves external validity by more closely simulating a real campaign environment.

We make use of two unique experimental datasets collected via DPTE in which the gender of presidential candidates was manipulated while all other candidate information remained the same. The first dataset was collected in the mid 1990’s and was previously examined for other purposes (Lau and Redlawsk, 2006.) The second dataset is from the spring of 2010. In addition to considering information processing and gender, we can illuminate how the changing political environment for female candidates has influenced patterns of voter information search across a long period of time. While the idea of a female presidential candidate with a realistic chance of getting the nomination probably seemed farfetched to voters when the first dataset was collected, times had certainly changed by the time of the second study.

We begin by reviewing key literature on candidate gender and voting, and then describe our experimental studies, including the DPTE system used for data collection. Next we report Study 1, where we find that, in the 1990’s, Republican women, in particular, appeared disadvantaged as candidates, and voters tended to focus on competence in examining information about female candidates. Interestingly, women voters were particularly likely to focus on female candidate competence. Study 2 finds similar

¹See <http://www.processtracing.org> for the Dynamic Process Tracing Environment (DPTE) software and user guide. Any researcher may request access to the system for research purposes by clicking on the appropriate link on the website. Funding for DPTE and some of the research reported here was provided by support from the National Science Foundation and the University of Iowa.

results fifteen years later. Competence is still an important part of information search for female candidates. Moreover, both studies show a significant focus on issue positions for female candidates, but in Study 2 we find that effects are focused specifically on compassion issues, as might be expected if certain gender stereotypes are being activated. Both studies also support our basic contention that information search mediates the effects of gender on the vote choice. Finally, we discuss the importance of these findings and suggest directions for future research.

Gender and the Vote

The role of women in American politics has been a topic of research and debate for many years, and while we cannot review even a significant portion of it here, much of it suggests that candidate gender should play a role in information search, candidate evaluation and vote choice. For example, findings from many experimental studies suggest that voters may infer specific personality traits from female candidates that they do not from males (Huddy and Terkildsen 1993, McDermott, 1998; Alexander and Anderson, 1993; Kahn, 1992, 1994; Leeper, 1991). Women are perceived as more empathetic and less decisive than men, while men are seen as more assertive and rational than women (Huddy and Terkildsen 1993). Female candidates are also perceived as more trustworthy, honest, and compassionate than their male counterparts (Kahn 1996). At the same time they are perceived as less competent and experienced, less able to handle the emotional demands of high office, and lacking in masculine traits like “toughness” (Alexander and Andersen 1993; Koch 1999; Carroll and Dittmar 2010). Because of these trait perceptions, voters also believe that men and women have different policy strengths: women are perceived as better able to handle “compassion” issues like education, healthcare, childcare, and poverty, while men are more adept at “masculine” issues (military, terrorism, crime) (Cook, Thomas and Wilcox 1994; Dolan 2004; Rosenwasser and Seale 1988). Female candidates are similarly stereotyped as more liberal than their male counterparts (Alexander and Andersen 1993; Koch 2000). These various inferences about female candidates may lead voters to focus information search on very different issues and character traits when looking at female candidates than they would with males.

We also expect that the presence of a female candidate may lead to different information search patterns for male and female voters. Plutzer and Zipp (1996) find identity politics can lead women voters to consider a female candidate simply because she is female. They find that in some cases – especially among Republican voters – the presence of a woman on the ballot creates significant partisan defection in the general election. Cook (1994), looking at the same set of elections, finds a similar effect, and Sanbonmatsu (2002) finds evidence that voters have a “baseline gender preference,” which may lead women voters to prefer a female candidate, all else equal. Similarly, Dolan (1998) finds that in U.S. House elections, women are more likely to support female candidates than are men, and the particular set of issues that come into play also differ between genders. From our information processing perspective, then, the simple presence of a female candidate may create a difference in the type of information female voters seek compared to male voters.

The presence of a female candidate may also affect voter engagement. For example, Atkeson (2003) finds that as women become more visible as candidates, women voters become more politically engaged. Stokes-Brown and Neal (2008) find something similar – when female candidates discuss so-called women’s issues, women voters are more likely to become engaged. From an information processing perspective, the presence of a female candidate, which appears to increase the engagement of voters (especially women), should lead to increased information search overall.

Thus we have three basic areas of focus: the amount of information seeking during a campaign, the type of information examined, and gender differences among voters in information seeking when a woman is on the ballot. While there are many reasons why gender matters in politics, information processing theory tells us that it matters not due so much to a direct effect on vote choice, but because most of the factors discussed at length in the literature – identity, stereotypes, engagement, issues – drive the type and amount of information voters acquire about the candidates before they ever make their vote decision.

Information Processing and Dynamic Process Tracing Experiments

The conflicting evidence of the effects of candidate gender on the vote we find in prior research leads us to argue for an information search focus if we are to understand how female candidates are affected by their gender. Candidate evaluations are based on information – however much or little voters may have available, so we must understand how and under what conditions voters *learn* about candidates. In doing so we are guided by the Lau and Redlawsk (2006) information-processing model of the vote.² The Lau and Redlawsk model includes a role for the traditional antecedents of the vote – socio-economic status, political experience, personal characteristics, ideology, partisanship, and the like – as well as the information voters acquire over the course of a campaign. The standard antecedents, along with the attributes of the current campaign, including the nature of the candidates, drive information processing which, in turn, lead to the vote choice itself. In this context, candidate gender is a campaign factor that likely interacts with some of the attributes of the voter – gender in particular – to influence the parameters of information search. Thus, we designed our studies to explore how information processing changes when candidate gender is systematically varied.

Our studies make use of the Dynamic Process Tracing Environment (DPTE) as a software platform for exposing research participants to election campaigns. DPTE has been described in detail elsewhere (Lau and Redlawsk, 2001; 2006; Redlawsk & Lau, 2013) so we will be brief. Process tracing follows a decision-maker's choices as she examines the information she feels she needs to make a decision. Detailed scripts of the information search are unobtrusively collected, providing measures of the sequence in which information is examined, the amount of information acquired (depth of information search) and the patterns evident in the search (search strategies.) These experiments are “dynamic” because participants face an ever-changing information environment that mimics the ebb and flow of a real-world election campaign.

To model election campaigns using DPTE, we identified the kinds of information that voters might expect to be able to learn about candidates and assigned sets of attributes to a series of invented candidates. These attributes included personal traits, background information, a wide range of issue

² See Figure 1 in the Online Appendix.

positions, polls, and endorsements. For the most part, participants chose what they wanted to learn by clicking on “boxes” that scrolled down the computer screen, with new information appearing at the top, remaining available for access for a period of time, and then disappearing off the bottom. Figure 1 shows a screenshot of a DPTE campaign. Because the candidates were invented, participants knew nothing about them at the beginning; anything they learned must have come from the information available to them in the campaign.³ The campaigns are presented over a short period of time – in these studies between 13 and 25 minutes. Despite this, participants learn a great deal about their options, on average examining well over 100 candidate attributes during the course of the typical campaign.

[Insert Figure 1 about Here]

Data and Methods

Our data come from two studies, run about 15 years apart, in which we asked participants to focus on mock presidential campaigns presented on a computer, using DPTE. The studies have much in common, but we will describe each independently below, following which we will examine the results.

Study 1

Study 1, conducted in the mid-1990’s, consisted of three separate experiments, two of which have essentially the same design, and can be analyzed together. The third experiment has some differences requiring separate analysis, though it contains many elements in common the first two experiments. All participants in Study 1 were non-students recruited from the central New Jersey area and randomly assigned to various experimental conditions, most of which are not relevant for this paper.⁴ In all three experiments, participants answered a standard political attitudes questionnaire before beginning the

³ In Study 1, participants could also learn information from campaign television ads which periodically took over the computer screen, interrupting the information search process. These 20 second ads were typical of presidential campaign advertisements, except that for the most part they were positive in nature, highlighting one particular issue for each candidate. There was nothing in the ads that could not be learned by clicking on the scrolling boxes and reading the resulting detailed positions. Video ads were not used in Study 2.

⁴ Extensive details on the study are available in [author citation removed.] The number of participants was 194 for experiment 1, 97 for experiment 2, and 107 for experiment 3. Participants, while not a random sample, generally represented the demographics of the area from which they were recruited.

presidential election campaign. In Experiments 1 and 3, the campaign included a primary and a general election. In Experiment 2, only a primary election was presented.

Presidential candidates were invented, but designed to represent the range of candidates typically running in Republican and Democratic primaries of that era.⁵ Participants were randomly assigned to a primary election featuring either two or four candidates from their own party (the “in-party”) along with four or two candidates, respectively, in the other party (the “out-party”). Thus, there were always six candidates running in two simultaneous party primary elections.⁶ While participants could learn about candidates from both parties, they could only vote for a candidate in their own party, modeling a closed primary. Following the primary, after participants voted and evaluated all six candidates, those in experiments 1 and 3 participated in a general election with one Democrat and one Republican, with the in-party candidate generally chosen from among the candidates the subject did not vote for in the primary. However, in experiment 1, it was not possible for a female candidate to make it to the general election by design, so we are limited to examining how the female candidate fared in the general election in Experiment 3 only. In this experiment, general elections were mostly between one female and one male (54 cases), or two males (53 cases).⁷

In study 1, candidate gender was manipulated by assigning either a clearly male or female picture to the candidates who were subject to manipulation. Nothing else was changed; the only indication of candidate gender was the picture. Thus, our manipulation is quite subtle – female candidates do not differ on issue positions, on endorsements, traits, or any basis other than the picture. Even candidate names were

⁵ There were four possible candidate “personas” in each party’s primary. Among the Democrats, there was an extremely liberal candidate, a “mainstream” liberal candidate, a somewhat conservative candidate, and a “mixed” candidate who took both conservative and liberal positions, but averaged right down the center. Likewise, Republican primary voters could choose among a mixed-ideology Republican candidate, a relatively liberal Republican candidate, a mainstream (conservative) Republican and an extremely conservative Republican. In each party, the “mixed-ideology” candidate and the “mainstream” liberal or conservative candidate were designated for the gender manipulation; all other candidates were always male. See Figure 2 in the Online Appendix.

⁶ Participants chose the party in which they wished to vote in the primary; when we refer to in-party this is the party they voted in, the out-party is the other party. Where appropriate in the analyses below we control for the number of primary in-party candidates.

⁷ In four additional cases there were female candidates in both parties. Because we are interested in comparing male candidates to female candidates, we dropped those cases from the analysis.

carefully chosen to be as gender neutral as we could, thus we had “Chris Rodgers” and “Pat Thomas” for example, though we expected voters to assume they were male until seeing a picture to the contrary (Smith, Paul and Paul 2007). All text descriptions of candidate positions and other attributes were written to avoid the use of personal pronouns. Thus, until and unless participants clicked on a candidate picture to view it, they could not know that the candidate was female.

Study 2

Study 2 consists of a single experiment completed in the spring of 2010. Like Study 1, this was also a DPTE experiment, though using a newer version of the software. Study 2 replicated our key gender manipulation from the earlier three experiments using a new sample of 132 undergraduate students, who were recruited from various political science courses at Rutgers University.⁸ Study 2 was a collaborative experiment in which our gender manipulations were presented to participants along with several other manipulations from other researchers. There is no theoretical reason to believe that those manipulations should affect our results in any way, though we control for them in our analyses below.⁹

Aside from this, the design of Study 2 largely mimicked the experiments that comprise Study 1. Subjects were asked first to complete a preliminary questionnaire asking questions related to demographics, partisanship, ideology, political sophistication, political participation, issue positions, and personality measures. They then participated in a 20-minute general election, only, in which one

⁸These include exposure to either two or three campaigns simultaneously, as well as variation in the office at the “top of the ticket” between the Presidency and Governor. Participants always saw a race for the House of Representatives, while half saw a presidential race and half saw a gubernatorial race. Half of the sample also saw a Senate race, while the other half did not. There were a total of 279 participants overall, but since we manipulated gender only in the presidential campaign our effective sample is the 132 participants who saw that campaign. The other unrelated manipulations affected the information environment during the campaigns. Half of participants saw campaigns with a “realistic” Distribution of information, where there was more information available for the presidential candidates than for the House candidates. Others experienced campaigns that had “equal resources,” so there were equal numbers of information boxes no matter the level of the office sought. Finally, the media attribution for some information was varied so that some participants saw certain information from conservative outlets, others saw information from liberal outlets, and another third saw no attribution. All of these treatments were randomly assigned and are controlled for in our analyses.

Republican and one Democrat ran against each other.¹⁰ After the campaign, participants were asked to cast their votes and then complete a questionnaire in which they evaluated each of the candidates. In this study, the gender of the participant's in-party presidential candidate was manipulated, while the out-party candidate was always male.¹¹ This differs from Study 1, in which the female candidate could have appeared in either the subject's in-party or out-party. Candidate gender was manipulated for the in-party because we expected that participants would be more likely to vote for and care about candidates in their own political parties during a general election. Manipulating the in-party candidate ensured that participants grappled with any gender-based stereotypes without simply dismissing female candidates based on political party. Also, unlike Study 1, participants in Study 2 were made aware of the candidates' gender at the very beginning of the experiment via a "synopsis page" before the campaign started, which listed the names, offices, and pictures of each candidate in the race.¹² Names remained gender-neutral and subjects were randomly assigned to the gender conditions.

Results

Study 1

Vote Choice

We begin by looking at the vote as the outcome of the information search process. We ask if information search *matters*, that is, if outcomes change when gender is varied. Table 1 presents the primary election results, based on the Lau-Redlask information-processing model (2006) with the dependent variable coded 1 for a vote for a female candidate. The model incorporates partisanship, ideology, voter demographics, issue agreement, candidate trait evaluations, and group endorsements, the standard elements of vote models since at least *The American Voter* (Campbell, Converse, Miller, and

⁹ Unlike Study 1, candidates did not vary by ideology—the Democratic candidate always had “mainstream” liberal Democratic issue stances, while the Republican always had “mainstream” conservative Republican positions.

¹⁰ Participants who identified as independent were which party they felt closer to, and were placed in the appropriate group. Those who could not choose a party were dropped from these analyses.

¹¹ Example ‘synopsis pages’ can be viewed in the online appendix.

Stokes 1960). To this model we add an indicator of candidate gender and the interactions between candidate gender and voter gender and between candidate gender and voter partisanship.

Predicting the primary vote using traditional models is difficult, since partisanship cannot be a factor. The only significant predictors are the indicator for the number of candidates in the primary and the positive perception of candidate traits for the female candidate. The first suggests that voters were less likely to choose the female candidate in the four-candidate primary as compared to the two-candidate primary. The candidate trait measure is substantively more interesting and congruent with existing research on candidate gender and voter perceptions. While neither issues nor group endorsements play a role in choosing the female candidate, holding a more positive perception of her traits compared to the male candidate increases her chance of winning, all else equal.

[Insert Table 1 about Here]

We turn next to the general election in experiment 3, where the female candidate could be Republican or Democrat. Since this is a general election, we examine a partisan vote rather than a gender vote, predicting the likelihood of a vote for a Republican candidate. Our predictors are scaled so that positive values are in the Republican direction, where appropriate. The model is shown in Table 2. All else equal, when a general election candidate of *either* party was female, voters were less likely to vote for the *Republican* candidate. In other words, when the Democratic candidate was female, the Democratic candidate was more likely to win the election, suggesting an advantage for Democratic women candidates. On the other hand, when the Republican candidate was female, she was disadvantaged and less likely to win than her Democratic male competitor. These results are quite consistent with studies of real House and Senate races of the time (Sanbonmatsu & Dolan 2008, Kahn 1994) and are consistent with Zipp and Plutzer (1985.)

Information Search—Primary Election

We turn now to our analysis of subjects' information search patterns during the campaign. Calculating information search measures for the female candidate in the primary is straightforward since there could only be one in each party. There could, however, be more than one male candidate, so we

average the amount of search for all men available in the election –either one (for the two candidate primary) or three (if there were four candidates.) In the general election, with only two candidates, comparing information search for male and female candidates is straightforward.

Information search in the primaries is modeled using a repeated measures linear model predicting the amount of search (number of items examined during the campaign) for male and female candidates by subject gender, party, and whether the subject voted for the female candidate, while controlling for the total amount of information examined for all candidates. Following Lau and Redlawsk (2006) we also include a control for the vote choice, not for substantive analysis, but simply to wash out effects of candidate preference on information search not related to gender.¹³ This analysis is carried out for in-party candidates only, since these were the candidates from among whom the voter had to choose at the end of the primary campaign.

We predict the mean for four types of information search by candidate gender -- total information search, candidate trait-related search, a subset of traits considered competence-related (political experience, work experience prior to politics, military experience, education, and an evaluation of performance in political office [Carroll, 2009]), and issue-oriented search -- since commonly-held stereotypes of women candidates consist of assumptions about both their traits and issue specializations. The results show some evidence of differential information search by candidate gender.

We find no significant difference in total search for male vs. female candidates, nor in total trait or issue-based search. On the other hand, voters examined more competence-related information for female candidates than for males (Female=1.6, Male=1.2, $p < .10$.) This supports the major finding of the primary election vote model, where relative candidate trait evaluations distinguished voting for a female over a male candidate. Here we find that the traits that mattered were the ones directly related to

¹² Because the vast majority of the information voters could view was text, and the length of each item varied, the time it took participants to read items would also influence information search. Thus we control for the number of words in each item and the reading ability of the voter. Reading ability was measured as the time it took each subject to read the instructions and scenario presented before the experiment began, which was automatically calculated by the computer. Full models are available from the authors upon request.

perceptions of the candidate's competence.¹⁴ This result confirms existing literature on competence-based stereotypes (see for example Huddy & Terkildsen 1993; 1993b; Kahn 1994 Bystrom 2010; Fox 2010).

[Insert Figure 2 about Here]

Figure 2 charts the interaction effects between candidate and voter gender. In the interest of space, we display only results for statistically significant findings. The remaining interactions can be found in Figure 5 of the Online Appendix. While the effects for total search and issues-based search are not significant, there is a *voter* gender difference in trait search and competence search (joint significance, $p < .08$). As displayed in the first panel of Figure 3, male voters examined less trait-oriented information for female candidates than for male candidates (female candidates=4.1, male candidates=4.4) but when they did focus on traits, they looked at *more* competence-related information (second panel of Figure 3, female candidates=1.5, male candidates=1.3). About 29% of all the trait information male voters examined for male candidates was competence-related, but more than 36% of trait information men examined for female candidates was competence-related.

Unlike male voters, women were *more* likely to focus on trait information for female candidates than for male candidates (female candidates=4.7, male candidates=4.3). Like male voters, though, women voters were also more likely to focus on competence information for female candidates than they were for male candidates (1.6 vs. 1.1). Compared to men, women voters actually looked at a smaller share of competence information for male candidates (26% of all trait information search) while examining about the same percentage of competence information (35%) for female candidates as did men.

Recall that trait information directly affected the primary vote choice in Study 1, while candidate gender did not. These information search results help us understand this. Women voters focused more on trait information for female candidates than they did for males, while voters of both genders focused greater information search on competence considerations for female candidates, compared to male

¹³ We examined whether there were partisan differences between voters in information search for male and female candidates. The results (not shown) also fit the voting model, with partisans of both parties equally likely to focus on female candidates.

candidates. These search patterns condition the information voters have available to them as they cast a vote. Voter and candidate gender do matter in the primary elections, but only in conditioning information search, which in turn influences the actual vote.

Information Search -- General Election

Study 1's analysis of the general election is limited to experiment 3. About half of these general election campaigns included a female candidate. Since participants could have been exposed to information about the two candidates running in the general election during the primary, we analyze information search for the general election by combining search for both the primary and general elections (Lau and Redlawsk, 2006.) We focus on in-party search only, as only about 10% of our participants voted against their own party's candidate. We develop a model similar to the primary, although given the manipulation, we use a multiple dependent variables (MANOVA) model to predict the effects of candidate gender, subject gender, and party on each of the four types of information search.¹⁵ Here, we do not see a significant difference in the search for overall candidate traits or for competency items. The effects found in the primary simply do not carry over to the general election, most likely because by the time of the general election, voters had already focused on competency in the primary. Moreover, since the female candidate won her primary, perhaps they took that as a cue that she was, in fact, competent. The only candidate gender difference occurs for issue-based search, where female candidates were the focus of more issue-based search than were male candidates (female=12.7, male=10.8, $p < .10$).

As we did with the primary, we examine the joint effects of candidate and voter gender on information search in Figure 3. Female voters *still* focused more on competence for in-party female candidates than for male candidates; for male voters the opposite was true ($p < .05$).¹⁶ Male voters examined only about *half* as much competence information for a female general election candidate as did

¹⁴ As with the primary election the general election model controls for total information search, the number of words in each item and participants' reading ability, as well as for the vote preference.

¹⁵ Again, we only present figures for statistically significant results. The results for total search and trait-based search can be found in Figure 7 in the Online Appendix.

women voters. But when a male in-party candidate was running, male and female voters looked at the same amount of competence information.

The pattern is just the opposite for issue information. Male voters examined *more* issues for a female candidate than did women voters ($p < .10$), while men and women voters examined the same amount of information for male candidates. These results suggest that women voters continue to focus on a female candidate's competence, even after she has been vetted through a primary election. Male voters, on the other hand, seem to either accept her as competent or not once she reaches the general election, and then move to focus on her issue positions. Since there is no difference in either trait or issues search for male candidates by either male or female voters, the gender of the candidate seems to be driving this pattern. We discuss possible explanations for this later in the paper.

[Insert Figure 3 about Here]

Recall that in the general election, we do see direct effects of candidate gender on the vote with female Republican candidates disadvantaged compared to other candidates. The information search data suggests a reason for this based on competence assessments. Competence information seems especially important for female candidates, but male voters of both parties search for far less of that kind of information for female candidates. Perhaps female Republican candidates are disadvantaged, in part, because male voters are not seeking out this information and are, instead, relying on stereotypes that women are less competent. But these findings come from experiments carried out a decade and a half ago. Study 2 allows us to see if anything has changed over time.

Study 2

Vote Choice

Study 2 allows us to see if the results we found in Study 1 still pertain following the significant changes that have occurred since then in the political environment, especially the Clinton campaign for president. Table 3 presents the results of the logistic regression predicting an in-party vote in the Study 2 general election. We largely mimic the model used in Study 1, though we predict in-party vote rather than a Republican vote in order to clearly show our results in this study, which manipulated only the in-party

candidates. Several control variables reach conventional levels of statistical significance in this equation, though in the interest of space, we will not discuss them here. The extent to which a subject agrees with their in-party candidate's issue stands ($p < .01$), and their attitudes toward endorsing groups ($p < .1$) both increase the likelihood of an in-party vote. Of course we would expect to find that greater agreement with a candidate's issue positions and endorsing groups would increase the likelihood of voting for one's in-party candidate, so this is no surprise.

[Insert Table 3 about here]

We also find that the interaction between subject party (Republican) and candidate gender (female) has the expected negative sign, though it does not reach statistical significance ($p < .16$). This provides some indication that, thanks perhaps to changing gender roles and the increasing visibility of Republican women candidates, the disadvantages faced by Republican women in the earlier study may have weakened over time.

Information Search

Any direct effects of gender on vote choice seem to have diminished over time. We now turn to an examination of the information search participants engaged in to see if information search patterns for women candidates have also changed. In Study 2, we measure information search by calculating the overall number of items viewed during the campaign for in-party candidate, as well as the number of items accessed in each of several different categories: all issue-based information, information related to "compassion issues" (i.e. related to health care, education, the environment, and poverty, at which women are considered especially adept), competence-relevant information (items that discuss a candidate's past job experience, political experience, performance in a debate, and job evaluations from an editorial), and information related to the candidate's personal life and background (information about the candidate's family, education, religion, and a quote from the candidate's mother) which is similar to the "trait-relevant" information presented in Study 1.

As in Study 1, we used a multivariate analysis of variance (MANOVA) to analyze our information search variables. Figure 4 shows the main effects of candidate gender on information search.

We find significant effects of candidate gender on three of our five dependent variables: total information search, issue search, and compassion issues search. The presence of a female candidate leads voters to search for more information in total than when both candidates are male (female candidate = 19.2, male candidate = 15.9, $p < .1$), suggesting that contemporary participants want to learn more, overall, about a candidate when she is a woman, an effect that was much weaker in the older data.

[Insert Figure 4 about here]

While participants search for more information in total about female candidates, they are not looking for more information about their general issue stands. In fact, there is significantly less search for general issue-related information about female candidates than male candidates (female candidate = 4.0, male candidate = 4.8, $p < .05$). The opposite is true, however, for compassion issues, in particular. Here voters look for significantly *more* information when their in-party candidate is female than when he is male (female candidate = 2.4, male candidate = 1.9, $p < .05$). The greater volume of search undertaken for female candidates, then, is at least partially comprised of search related to what have traditionally been considered women's issues.

A candidate's gender had no significant effect on search for candidate's personal and background information, contrary to our expectations based on the literature. We were also surprised that candidate gender did not significantly influence the number of items participants examined related to competence, which is another finding from Study 1. Voters with a male in-party candidate examined an average of 1.7 competence items, while those with a female candidate looked at 2.08, though this relationship does not quite reach statistical significance ($p < .15$).

Differences in competence-related search become more apparent, though, when we consider the interaction effects between partisanship and candidate gender. Figure 5 graphs this interaction.

Democratic voters did not look at more competence-related information for female candidates than for males (female candidate = 1.7, male candidate = 1.8). Republicans, on the other hand, looked at significantly more competence information when their candidate was female (female candidate = 2.5, male candidate = 1.6, $p < .05$). This suggests that voters' focus on competence-related information

uncovered in Study 1 is evident only among Republicans in the more contemporary data. We consider possible reasons for this later in the paper.

[Insert Figure 5 about here]

Finally, we examine a three-way interaction between voter gender, candidate gender, and voter party identification for the total information search dependent variable. Figure 6 decomposes the constituent parts of this relationship. Remember that the presence of a female candidate increases participants' overall information search. Figure 6 suggests that men and women voters are driving this trend differently in the different political parties.

[Insert Figure 6 about here]

Among Democrats (Panel 1) men look for substantially more information about female candidates than for male candidates, while women look for slightly less information about females than males (female voter, female candidate = 15.4, female voter, male candidate = 16.7, male voter, female candidate = 17.6, male voter, male candidate = 13.6, $p < .1$). Among Democrats, then, the added interest in female candidates comes entirely from male participants.

The opposite is true of Republicans (Panel 2.) While both Republican men and women look for more information about female candidates, the most substantial difference is among women. The difference for male Republicans is quite small (19.2 for male candidates, 21.2 for female candidates, n.s.) The difference for Republican women voters, however, is much larger (14.2 for male candidates, 22.7 for female candidates, $p < .1$). It is not just Republicans who drive the increased information search we find for female candidates, but specifically Republican *women* who do much of the extra searching. This mirrors our finding in Study 1, in which women (regardless of party) searched for more overall information about female candidates than did men. Again, we consider possible reasons for this below.

Discussion and Conclusions

Across our studies, we find some differences in information search by candidate gender, as well as some noteworthy interactions between candidate and voter gender. This is interesting in and of itself, though we are ultimately more interested in information search as a means of understanding vote choice.

In our analysis of the primary vote in study 1, we found few direct effects for our substantive predictors, with the exception of candidate traits. The more positive the trait evaluations of the female candidate, the more likely voters were to choose her. When we examine the information search that comes prior to the vote, we find that candidate gender differences were focused on competence. Voters did not look for more issue information, or other candidate traits. The result, we suggest, is that in the presence of a female candidate in our mid-1990s studies, competence became a key factor in a voter's calculus, driving greater search for this information, and a significant effect on the vote for the trait evaluations that resulted.

We also find competence-related results in Study 2. Unfortunately, we do not have a measure of perceived candidate traits to include in our vote choice model in the more recent study, so we cannot be certain what role traits played in the Study 2 general election vote. We do know, however, that even in 2010, fifteen years after Study 1, at least some participants were still searching for more competence-related information for women candidates than they were for men. Study 2 reveals that this increased interest in female candidates' competence is driven by Republicans (and, specifically, by Republican women). While we cannot be sure why this is the case, it is possible that the timing of Study 2, which was conducted two years after the 2008 election in which Sarah Palin received the Republican vice presidential nomination, had something to do with these findings. Because her competence as a political candidate was under constant scrutiny throughout the campaign, it is possible that stereotypes of women candidates as incompetent were particularly salient among Republicans at this time. It may be that Republican women were particularly wary of being represented by another female candidate whose competence was questionable. It is also possible that female subjects were more attuned to competence than male subjects because women have been shown to underestimate their own qualifications for office and may, therefore, underestimate other women's ability to hold office, as well (Lawless and Fox 2005).

Returning to Study 1 and its general election analysis, our vote model found issues taking center stage in differentiating a partisan vote, rather than traits. We also found that candidate gender mattered directly, especially for a Republican candidate. Perhaps voters in the 1990s could more readily conceive of a female presidential candidate as a Democrat than a Republican and gave her more consideration

when that occurred. It is also possible that, due to differences in gender ideologies between the parties, Democrats were simply more accepting of a potential female president than were Republicans.

Information search findings may also provide an explanation. Nearly all of the significant effects on search were concentrated on issue-based search, at least in terms of the candidate's gender. In-party female candidates generated more issue search than did male candidates, with male voters especially interested in learning about her issue positions. In the mid-1990's, general election voters seemed particularly interested in examining the issue positions of women candidates. It may be that, as a result of stereotypes that women candidates are more liberal than men, Republican men felt the need to "check up" on the female candidates' issue positions to make sure that they were not "too liberal."

Study 2 may also shed light on the issue-based search findings from the general election in Study 1. Agreement with issue positions was also a significant predictor in our Study 2 vote model and, while there was no difference in total issues-based search for male and female candidates, there was a difference in focus on compassion issues, specifically. Participants cared far more about female candidates' stances on these issues than male candidates.' While we cannot be sure from this analysis how much these particular issues mattered to voters, we know that issues, in general, were important (in both studies), so differential search for traditionally feminine issues could very well have affected participants' ultimate voting calculus. Again, stereotypes about female candidates seem to continue to drive subjects' information search behavior.

Our results make clear that information search matters and that a candidate's gender plays a role in determining the information for which voters search. These findings shed some light on some of the contradictory findings in the gender and politics literature. In particular, we have a possible explanation for why experimental studies of gender stereotypes have found differences in evaluations of female candidates, while real-world election results suggest women win as often as men, when they run. The fact that female candidates in our studies generated search patterns consistent with gender based stereotypes—particularly those related to competence and traditionally feminine policy issues—shows that gendered evaluations seem to be affecting voting behavior indirectly. If these stereotypes led directly to vote

choice, we might expect female candidates always to be at a disadvantage. However, if information search mediates the relationship between stereotypes and final vote decisions, as we posit, then the information that voters find when they search matters a great deal. If a voter initially doubts a female candidate's competence but seeks out relevant information and learns that she is, in fact, competent, the candidate may not necessarily be at an electoral disadvantage. The good news here is that, even though voters seem to hold gender-related stereotypes, as evidenced by the kind of information they examine for women candidates, these assumptions apparently often lead to changes in information search, rather than the automatic dismissal of the female candidate.

Clearly, there is more to be done to develop a fuller understanding of the relationship between gender, information search, and vote choice. In particular, studies that manipulate the content of competence and issue-related information available to subjects would help to test the hypothesis that information search is mediating the relationship between gender and vote choice. This paper, though, is an initial step in the right direction. An information processing perspective makes clear that the effects of candidate gender on vote choice are mostly indirect, and are subsumed into the process voters use to decide about any candidate. In the end, it is clear that the effects of gender on voter decision-making are complex, but that information search plays an important role. The relationship between candidate attributes like gender, information search, and vote choice, then, is worth further examination.

Acknowledgements

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Table 1
Vote for Female Candidate in Primary Election, Study 1

| | B | S.E. | Wald | Sig. |
|--|--------|------|-------|------|
| Age | .668 | .687 | .945 | .331 |
| Education | -.580 | .724 | .641 | .423 |
| Income | -.592 | .516 | 1.314 | .252 |
| Partisan Strength | -.690 | .499 | 1.918 | .166 |
| Ideological Strength | -.775 | .622 | 1.552 | .213 |
| Subject Gender: Female | .009 | .417 | .000 | .983 |
| Republican Primary | .616 | .558 | 1.218 | .270 |
| Female Subject X Republican Primary | -.572 | .726 | .621 | .431 |
| Issue Agreement | -.002 | .081 | .000 | .985 |
| Positive Candidate Traits | 2.202 | .811 | 7.370 | .007 |
| Positive Group Endorsements | .016 | .112 | .021 | .886 |
| 4 Candidate Primary | -1.381 | .807 | 2.925 | .087 |
| Study 1 Control | .318 | .415 | .587 | .444 |
| Study 2 Control | .310 | .483 | .410 | .522 |
| Constant | -.034 | .878 | .002 | .969 |

Note: Logistic regression predicting vote for a Female candidate in a primary election.

% Classified Correctly: 74.4%

-2LL: 227.938

Pseudo R²: .129

Table 2
Vote for Republican Candidate in General Election, Study 1

| | B | S.E. | Wald | Sig. |
|--|--------|-------|-------|------|
| Age | -.228 | 2.081 | .012 | .913 |
| Education | 2.312 | 1.986 | 1.354 | .245 |
| Income | -.641 | .953 | .453 | .501 |
| Subject Gender: Female | -.262 | .789 | .110 | .740 |
| Party Identification – 5 point | 4.356 | 1.787 | 5.941 | .015 |
| Liberal-Conservative Self Placement | -1.166 | 1.971 | .350 | .554 |
| Issue Agreement | 12.145 | 4.116 | 8.707 | .003 |
| Positive Candidate Traits | 4.004 | 5.102 | .616 | .433 |
| Positive Group Endorsements | -.260 | 2.601 | .010 | .921 |
| Female Candidate: Democrat | -2.835 | 1.683 | 2.839 | .092 |
| Female Candidate: Republican | -2.255 | 1.310 | 2.963 | .085 |
| Female Democrat X Female Subject | 1.424 | 2.379 | .358 | .550 |
| Female Republican X Female Subject | -.479 | 1.970 | .059 | .808 |
| Party Identification X Female Democrat | 9.240 | 5.553 | 2.769 | .096 |
| Party Identification X Female Republican | 5.360 | 5.093 | 1.108 | .293 |
| Constant | -.689 | .997 | .477 | .490 |

Note: Logistic regression predicting vote for a Republican candidate in a general election.

% Classified Correctly: 87.7%

-2LL: 69.987

Pseudo R²: .666

Table 3
Vote Choice for In-Party Candidate, Study 2

| | B | S.E. | Wald | Sig. |
|---------------------------------------|--------|-------|-------|------|
| Age | .171 | .241 | .504 | .478 |
| Subject Nonwhite | 1.289 | .717 | 3.234 | .072 |
| Subject Gender: Male | 1.355 | 1.108 | 1.496 | .221 |
| Issue Agreement | 8.616 | 3.362 | 6.568 | .010 |
| Positive Group Endorsements | .399 | .238 | 2.807 | .094 |
| Female Candidate | .779 | 1.174 | .441 | .507 |
| Subject Republican | -.556 | .939 | .350 | .554 |
| Subject Male X Female Candidate | 1.045 | 1.522 | .471 | .492 |
| Subject Republican X Female Candidate | -2.067 | 1.460 | 2.033 | .157 |
| Senate Race | -1.630 | .878 | 3.444 | .063 |
| Realistic Info | .479 | .739 | .421 | .517 |
| Media Condition | .318 | .446 | .509 | .476 |
| Constant | -3.180 | 5.232 | .370 | .543 |

Note: Logistic regression predicting vote for in-party candidate in a general election.

% Classified Correctly: 87.3%

-2LL: 64.757

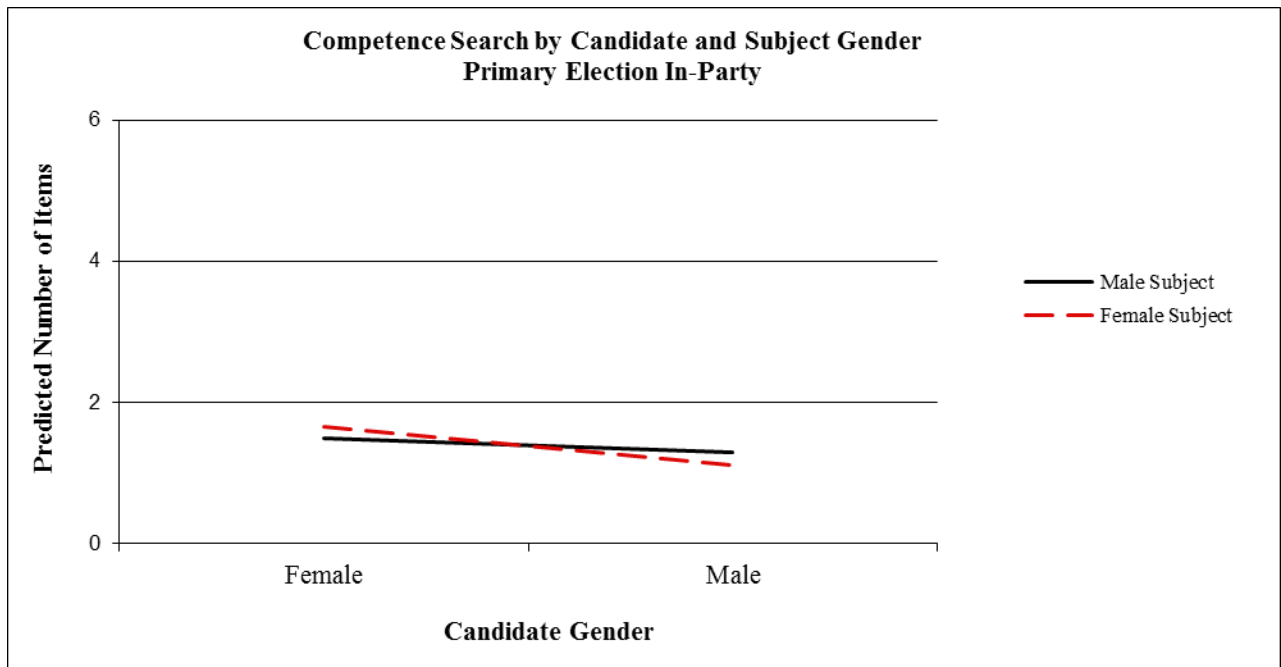
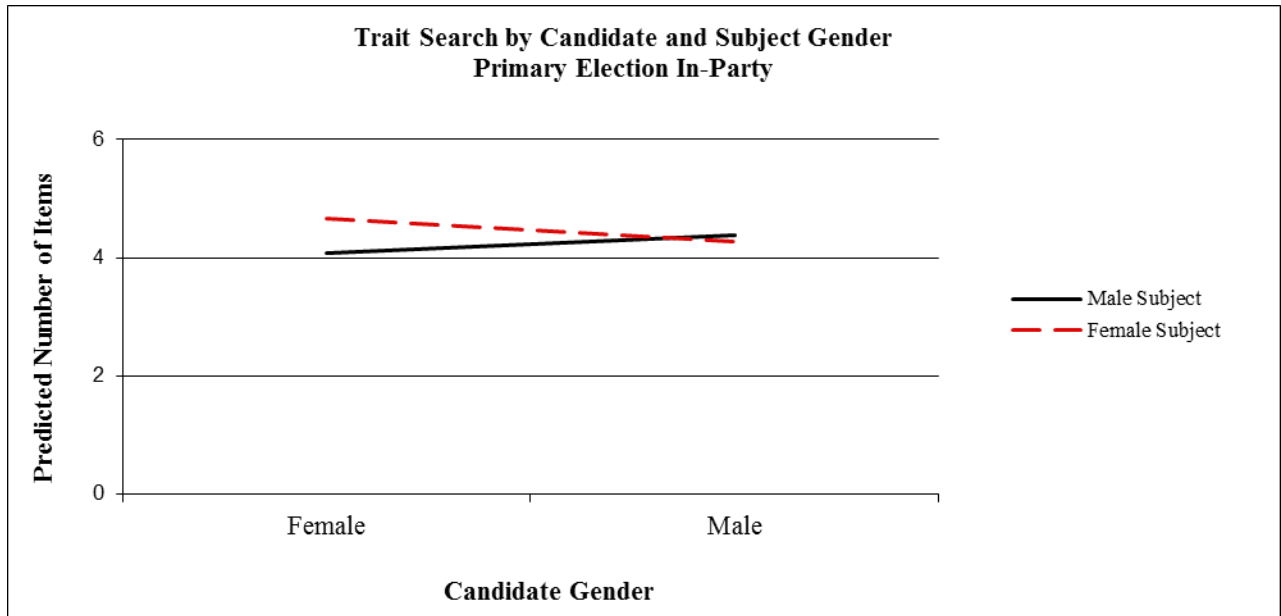
Pseudo R²: .508

Fig. 1
Dynamic Process Tracing Campaign Screenshot



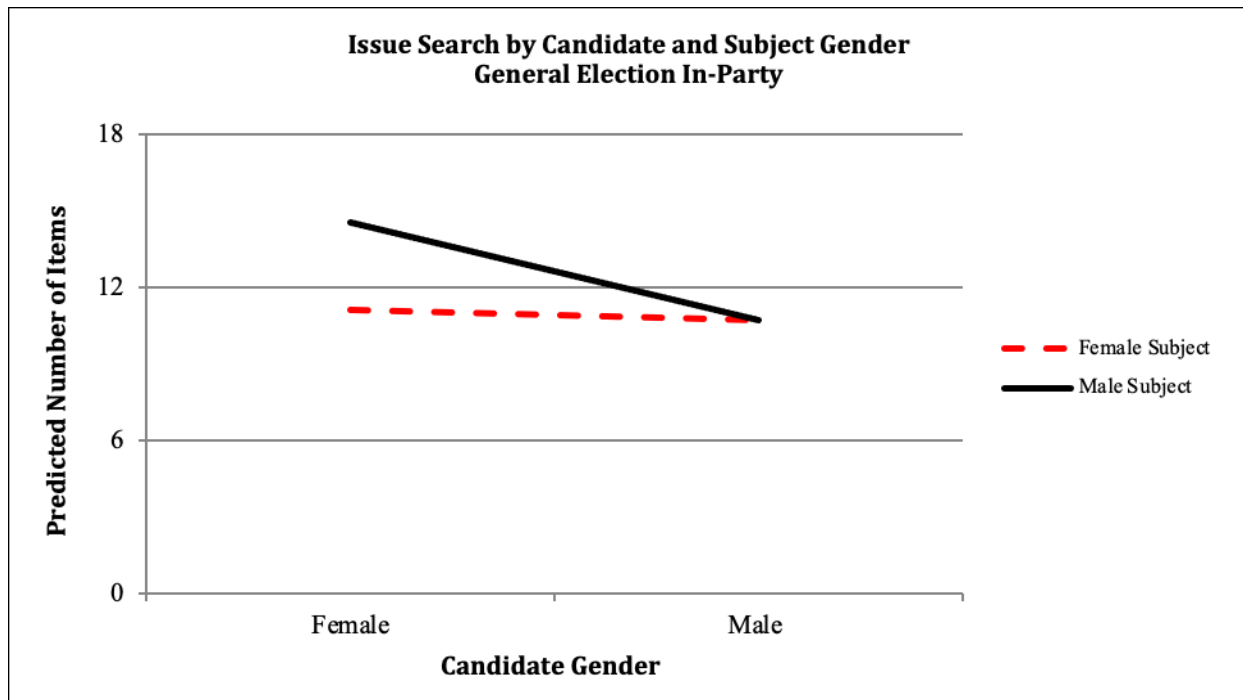
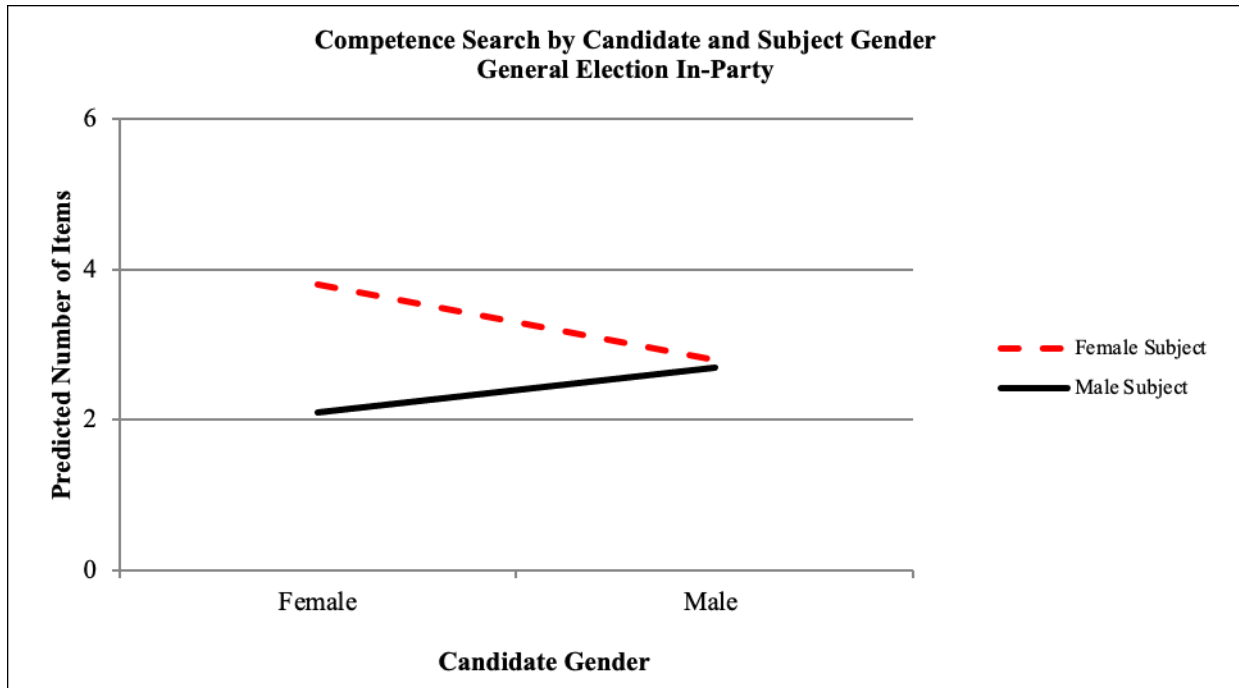
Panel 1 shows the scrolling information boxes on the campaign screen. Panel 2 shows an open information box displaying the information available by clicking on one of the scrolling boxes.

Fig. 2
Information Search by Candidate and Subject Gender in Study 1 Primary Election



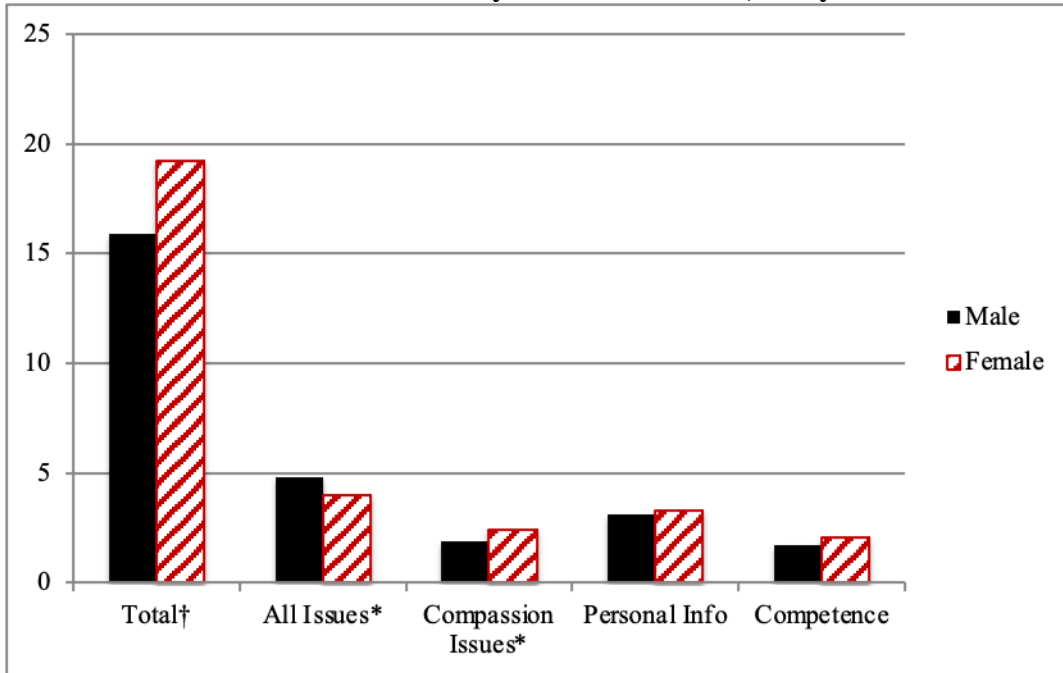
Note: Values are estimated marginal means, General Linear Repeated Measures Model, controlling for subject factors: reading ability, total amount of information viewed, total number of words in items viewed, party, and subject gender; and experiment and number of in-party candidates. Results are significant at $p < .08$.

Fig. 3.
Information Search by Candidate and Subject Gender in Study 1 General Election



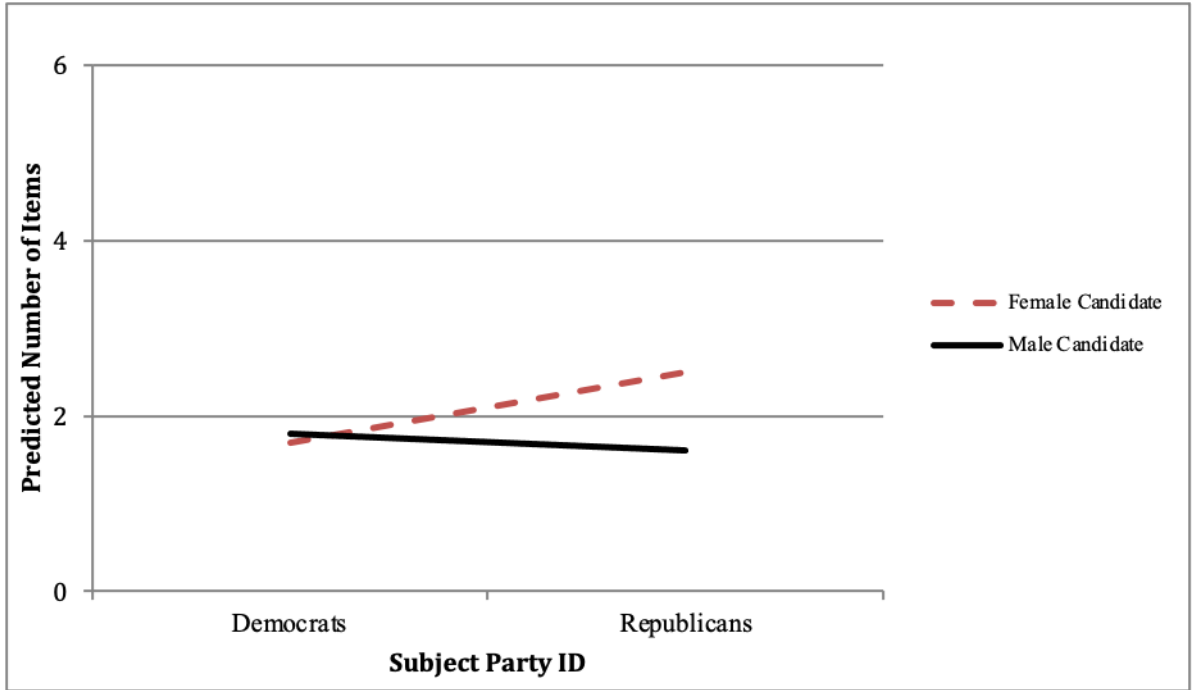
Note: Values are estimated marginal means, MANOVA, controlling for subject factors: reading ability, total amount of information viewed, total number of words in items viewed, party, and subject gender; and experiment and number of in-party candidates.

Fig. 4
Information Search by Candidate Gender, Study 2



*** $p < .001$, ** $p < .01$, * $p < .05$, † $p < .1$
Note: Values are estimated marginal means.

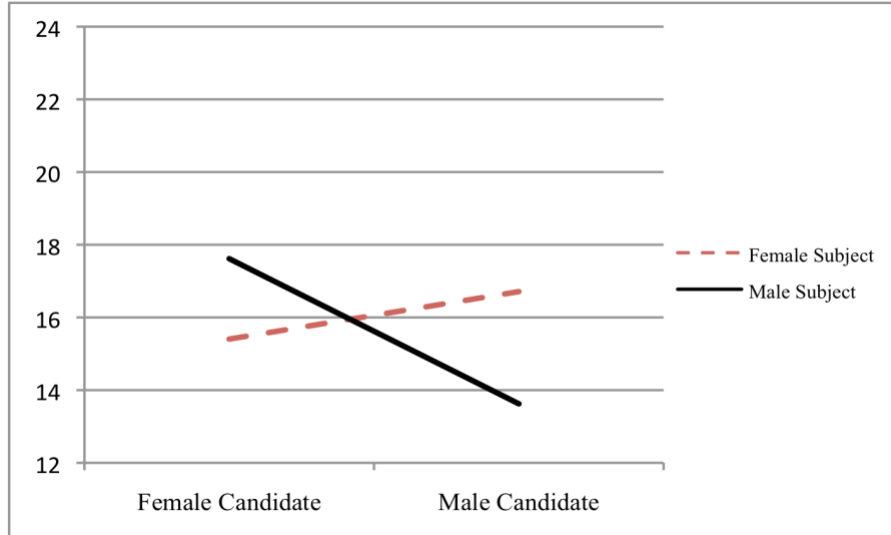
Fig. 5
Competence Information Search, Candidate Gender X Party ID, Study 2



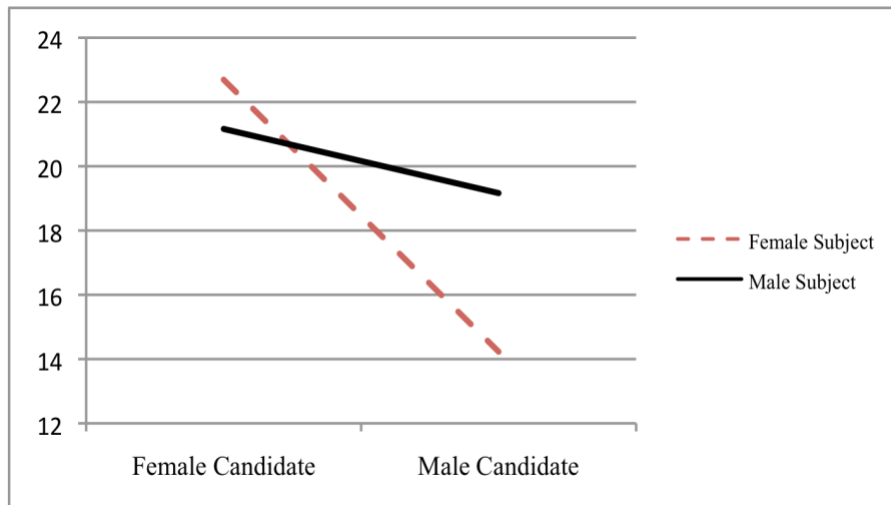
Note: Values are estimated marginal means.

Fig. 6
Total Information Search, Candidate Gender X Subject Gender X Party ID, Study 2

Democrats



Republicans



Note: Values are estimated marginal means.

Online Appendix

Fig. 1
A Process Oriented Model of Information Search and the Vote

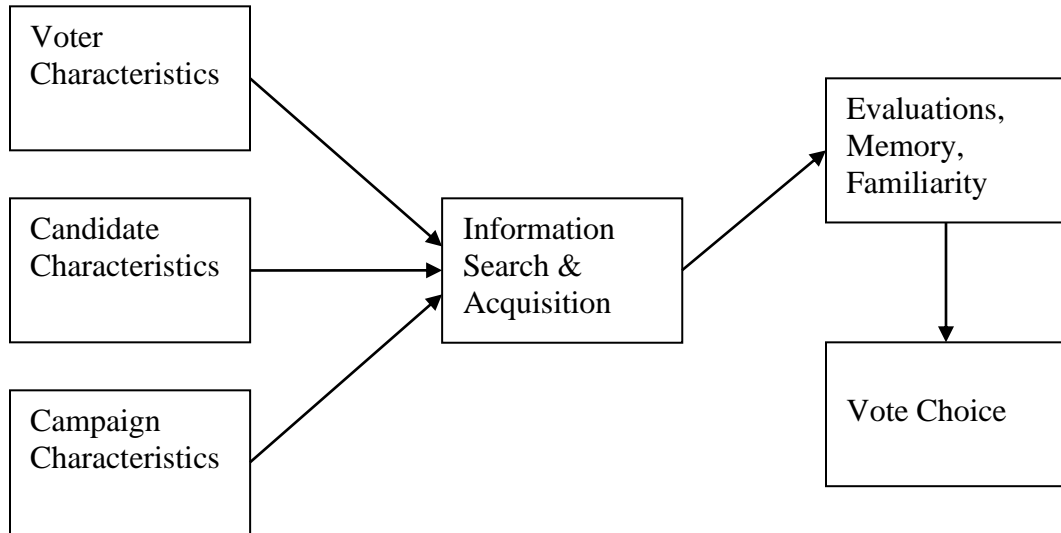


Fig. 2
Experimental Manipulations Designating Female Candidates in Study 1

| | Primary Election..... | | | | General Election |
|--------------------------|---------------------------------|-------------|----------------------------------|-------------|-------------------------|
| | # of In-Party Candidates | | # of Out-Party Candidates | | |
| | Two | Four | Two | Four | |
| Studies 1 & 2 | | | | | |
| Subject Party | | | | | |
| Democrat | NONE | Always D4 | NONE | Always R3 | NONE |
| Republican | NONE | Always R1 | NONE | Always D2 | NONE |
| Study 3 | | | | | |
| Subject Party | | | | | |
| Democrat | D2 or D4 | D2 or D4 | R1 or R3 | R1 or R3 | NONE, D2, or D4 |
| Republican | R1 or R3 | R1 or R3 | D2 or D4 | D2 or D4 | NONE, R1, or R3 |

Fig. 3
Presidential Candidates – Male/Female Condition



Fig. 4
Presidential Candidates – Male/Male Condition



Fig. 5
Total and Issues-Based Search in Study 1, Primary Election

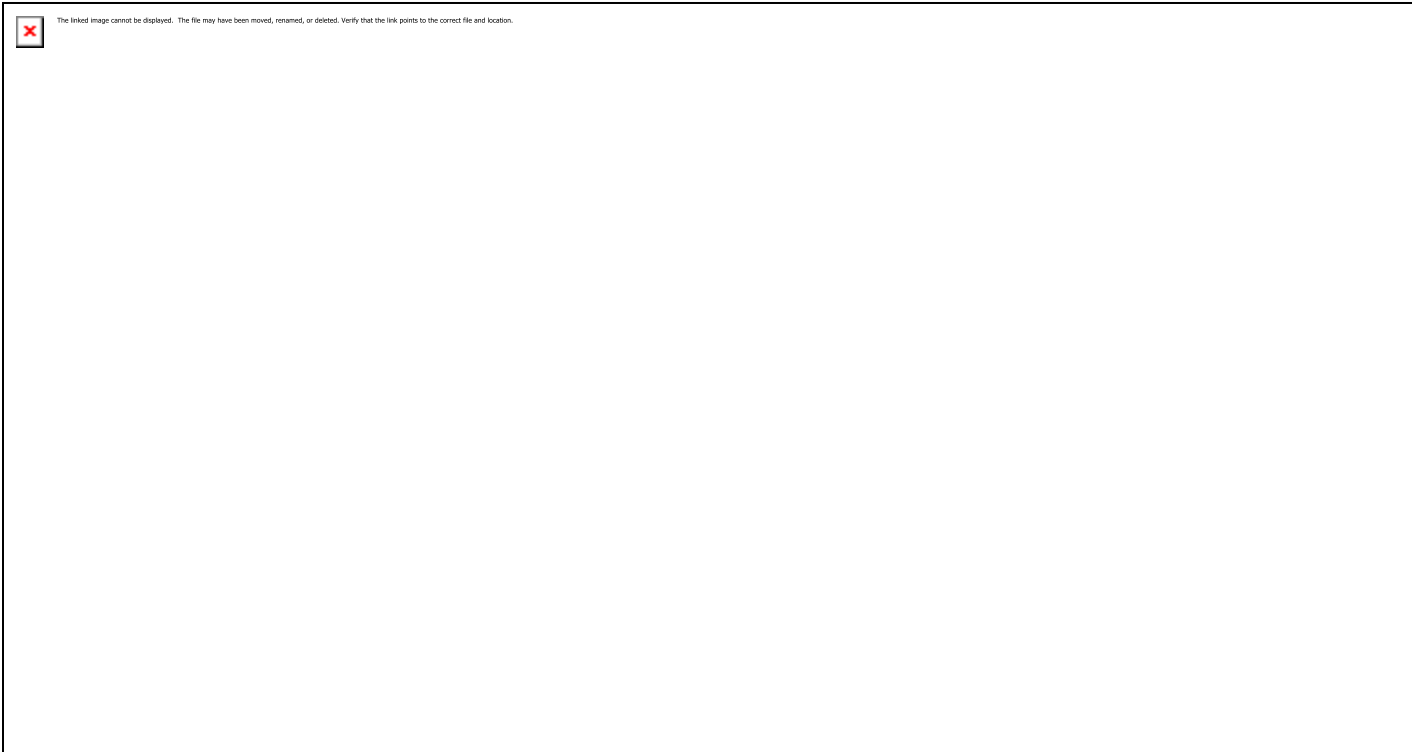
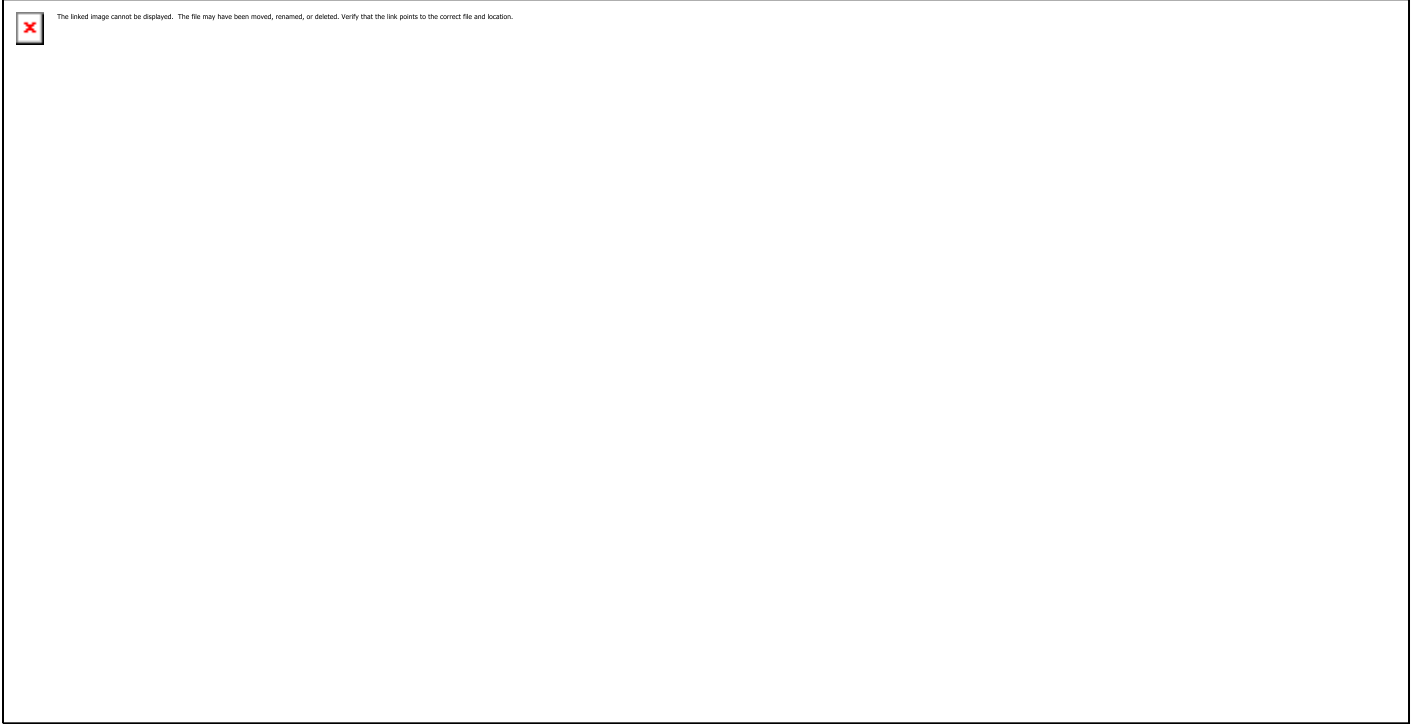


Fig. 6
Out-party search in Study 1, General Election

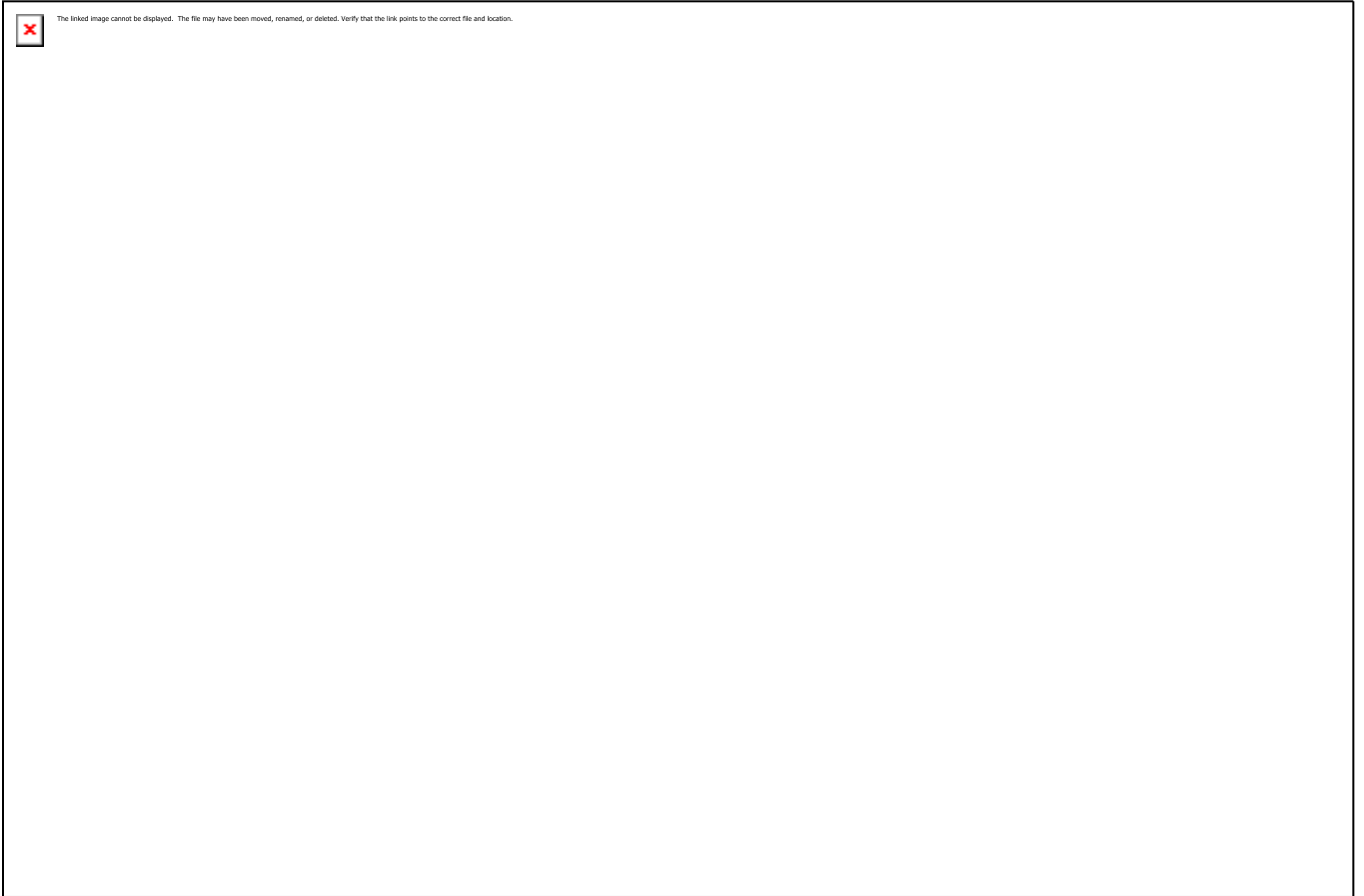


Fig. 7
Total and Trait Based Search in Study 1, General Election

